Unit 3, Lesson 12

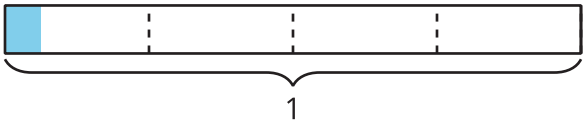
Represent Division of Unit Fractions by Whole Numbers

Let's use diagrams to represent division of a unit fraction by a whole number.

Warm-up

Estimation Exploration: How Much Is Shaded?

How much is shaded?



Record an estimate that is:

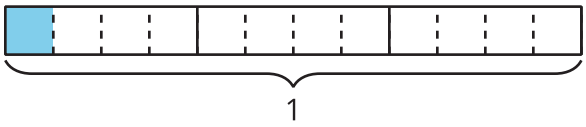
too low	about right	too high

Activity 1

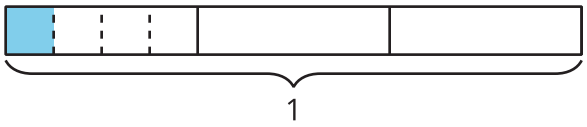
Diagrams, Equations, Situations

Priya and Mai use these diagrams to find the value of $\frac{1}{3} \div 4$.

Priya's diagram



Mai's diagram

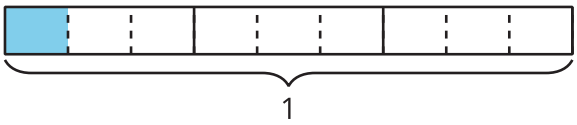


1. How are the diagrams alike?

2. How are they different?

3. Find the value that makes the equation true. $\frac{1}{3} \div 4 =$ _____

4. Han draws this diagram to represent $\frac{1}{3} \div 3$. How does his diagram show $\frac{1}{3} \div 3$? Explain or show your reasoning.



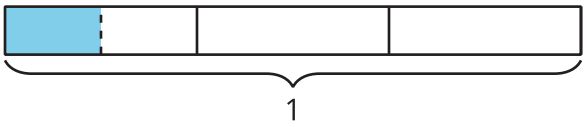
5. Find the value that makes the equation true. Explain or show your reasoning. $\frac{1}{3} \div 3 =$ _____

Activity 2

Noah's Work

1. Find the value of $\frac{1}{3} \div 2$. Explain or show your reasoning.

2. Noah is trying out Mai's diagram for this problem. Here is his work.



$\frac{1}{3} \div 2 = \frac{1}{2}$, because I divided $\frac{1}{3}$ into 2 equal parts and $\frac{1}{2}$ of $\frac{1}{3}$ is shaded in.

   a. What questions do you have for Noah?

   b. Noah's equation is incorrect. How can Noah revise his explanation?

Activity 3

Look for Patterns

1. Find the value that makes each equation true. Use a diagram if it is helpful.

   a. $\frac{1}{4} \div 2 =$ _____

   b. $\frac{1}{4} \div 3 =$ _____

   c. $\frac{1}{4} \div 4 =$ _____

2. What patterns do you notice?

   _____

   _____

3. How would you find the value of $\frac{1}{4}$ divided by any whole number? Explain or show your reasoning.